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Amended Claims

Please substitute the following claims, for the numerically corresponding, currently pending claims.

1. (Currently Amended) A method of forming a tiered structure using a multi-layered resist stack comprising the steps of:

providing a substrate having a surface;

depositing and patterning a base resist layer on the surface of the substrate;

stabilizing the patterned base resist layer, thereby forming a stabilized resist layer;

~~depositing a resist stack on an uppermost surface of the stabilized resist layer;~~

forming a resist stack including an isotropically developing material formed on an uppermost surface of the stabilized resist layer and an imageable material formed on a surface of the isotropically developing material ;

patterning, in alignment with an opening defined in the stabilized resist layer, an opening in the resist stack having a reentrant profile and a dimension greater than the opening defined in the stabilized resist layer;

depositing a metal material within the opening defined therein the resist stack and the opening defined therein the stabilized resist layer; and

removing the resist stack and the stabilized resist layer, thereby exposing a tiered structure.

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2. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 1 wherein the tiered structure is a T-gate structure.
3. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 2 wherein the step of providing a substrate having a surface includes providing a substrate formed of a semiconductor material.
4. (Currently Amended) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim ~~3~~ 1 wherein the step of depositing a base resist layer includes depositing a low to medium molecular weight, soluble, organic imageable material.
5. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 3 wherein the step of stabilizing the patterned base resist layer includes the step of exposing the base resist layer to one of a heat source, a light source, a heat source and a light source, an electron beam irradiation source, and an electron beam irradiation source and a heat source, thereby increasing the molecular weight of the base resist layer through cross-linking, forming the stabilized base resist layer.
6. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 5 wherein the step of exposing the base resist layer to a light source includes exposing to an deep ultraviolet light source.

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7. (Cancelled) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 5 wherein the step of depositing the resist stack on an uppermost surface of the stabilized resist layer includes forming a multiple layer resist stack.

8. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 5 wherein the step of depositing a metal material includes depositing a conductive metal material.

9. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 5 wherein the step of removing the resist stack and the stabilized base resist layer includes immersing the stack in a solvent bath immersion to remove the resist stack and etching to remove the stabilized base resist layer.

10. (Original) A method of forming a tiered structure using a multi-layered resist stack comprising the steps of:

providing a semiconductor substrate having a surface;

depositing a soluble organic imageable material on the surface of the substrate, thereby forming a base resist layer;

patterning the base resist layer to define therein an opening having a first dimension;

stabilizing the base resist layer by exposing the base resist layer to one of a light source, a heat source, a combination of a light source and a heat source, an

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electron beam irradiation source, and a combination of an electron beam irradiation source and a heat source, thereby increasing the molecular weight of the base resist layer through cross-linking and forming a stabilized resist layer having an opening defined therein;

forming a resist stack including an isotropically developing material formed on an uppermost surface of the stabilized resist layer and an imageable material formed on a surface of the isotropically developing material ;

patterning, in alignment with an opening defined in the stabilized resist layer, an opening in the imageable material and an opening in the isotropically developing material having a reentrant profile and a dimension greater than the opening defined in the stabilized resist layer;

depositing a metal material within the openings defined therein the resist stack and the opening defined therein the stabilized resist layer; and

removing the resist stack and the stabilized resist layer, thereby exposing a tiered structure.

11. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 10 wherein the tiered structure is a T-gate structure.

12. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 10 wherein the step of providing a substrate having a surface includes providing a substrate formed of a semiconducting material chosen from the group consisting of: column III-V compound semiconductors, glass, metals, silicon.

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13. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 10 wherein the step of depositing a base resist layer includes depositing a low to medium molecular weight soluble organic imageable material.

14. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 10 wherein the step of exposing the base resist layer to a light source includes exposing to a deep ultraviolet light source.

15. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 10 wherein the step of depositing a resist stack on an uppermost surface of the stabilized resist layer includes the step of creating a reentrant resist profile in the upper resist layer by diffusing a base into an uppermost portion of the resist stack, and defining an isotropically developed material adjacent the stabilized resist layer.

16. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 10 wherein the step of depositing a metal material includes depositing a conductive metal material.

17. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 10 wherein the step of removing the resist stack and

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the stabilized resist layer includes immersing the stack in a solvent bath immersion to remove the resist stack and etching to remove the stabilized resist layer.

18. (Currently Amended) A method of forming a semiconductor device comprising the steps of:

providing a substrate having a surface;

forming a source on an uppermost surface of the substrate;

forming a drain on an uppermost surface of the substrate;

fabricating a tiered structure including the steps of:

providing a substrate having a surface;

depositing and patterning a base resist layer on the surface of the substrate;

stabilizing the patterned base resist layer, thereby forming a stabilized resist layer;

~~depositing a resist stack on an uppermost surface of the stabilized resist layer;~~

forming a resist stack including an isotropically developing material formed on an uppermost surface of the stabilized resist layer and an imageable material formed on a surface of the isotropically developing material ;

patterning, in alignment with an opening defined in the stabilized resist layer, an opening in the resist stack having a reentrant profile and a dimension greater than the opening defined in the stabilized resist layer;

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depositing a metal material within the opening defined therein the resist stack and the opening defined therein the stabilized resist layer; and
removing the resist stack and the stabilized resist layer, thereby exposing a tiered structure; and
positioning the tiered structure between the source and the drain, thereby forming a transistor.

19. (Original) A method of forming a semiconductor device as claimed in claim 18 wherein the step of depositing a base resist layer on the surface of the substrate includes depositing a low to medium molecular weight, soluble, organic imageable material.

20. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 19 wherein the step of stabilizing the patterned base resist layer includes the step of exposing the base resist layer to one of a heat source, a light source, a combination of a heat source and a light source, an electron beam irradiation source, and a combination of an electron beam irradiation source and a heat source, thereby increasing the molecular weight of the base resist layer through cross-linking and forming the stabilized resist layer.

21. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 20 wherein the step of exposing the base resist layer to a light source includes exposing to a deep ultraviolet light source.

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23. (Original) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 20 wherein the step of removing the at least one resist layer and the stabilized resist layer includes immersing the stack in a solvent bath immersion to remove the at least one resist layer and etching to remove the stabilized resist layer.

24. (New) A method of forming a tiered structure using a multi-layered resist stack comprising the steps of:

- providing a substrate having a surface;

- depositing and patterning a base resist layer on the surface of the substrate;

- stabilizing the patterned base resist layer, thereby forming a stabilized resist layer;

- depositing a resist stack on an uppermost surface of the stabilized resist layer including the step of patterning a reentrant resist profile in the resist stack by diffusing a base into an uppermost portion of the resist stack, wherein the reentrant profile has a dimension greater than the opening defined in the stabilized resist layer;

- depositing a metal material within the opening defined therein the resist stack and the opening defined therein the stabilized resist layer; and

- removing the resist stack and the stabilized resist layer, thereby exposing a tiered structure.

25. (New) A method of forming a tiered structure using a multi-layered resist stack as claimed in claim 24 wherein the step of depositing a resist stack on an

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uppermost surface of the stabilized resist layer includes the step of defining an isotropically developed material adjacent the stabilized resist layer.